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early Apple

Mr Fabris,

Enclosed is the descriptios, listing, documentation, initial data, and an ad.

Not only is it slow but addicting. I let it run over night.

Every time I've tried to improve the program ~~I make some mistake~~ there is some error in functioning that is tracable to the cursor. w/o the cursor the game is less interesting.

A machine language version is needed.

Note I use a ~~60x70~~ 30x35 array and a 60x70 is possible. the entire display array could be used to store 1s and 0s.

Regards

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The Game of LIFE

Re: Scientific American 10/70, 2/71, 1/72
BYTE (I think) in early 1978

The screen is split left and right to display the present and future generation. the current generation is scanned at each location (cursor provided for reference)

The PX(X,Y) does the scanning.
The screen is used for a mass memory of 1's and 0's.
Also this gets around the need for arrays.
Lines ~~0~~ 12 to 899 are available for initial conditions

X locations must be even
Y locations must be odd

Every other location (STEP 2) is used.

To remove and save initial conditions the instruction

:PRINT;LIST 101,XX

where XX is the number of lines to be saved.

thus Box even, odd, 1, 1, 1
Box even+2, odd+2, 1, 1, 1

or

Box -22, -13, 1, 1, 1
-20, -11, 1, 1, 1
-20, -13, 1, 1, 1

St = ~~1011~~ 1021

This is always added by me for reference

```
1    NT=0
2    M=0
5    CLR
10   BC=80
11   FC=15
~~100  X=0;Y=0~~
998  M=M+1
999  CX=-25; CY=40; PRT #1, M
1000 FOR X=-66 TO -6 STEP 2
1010 FOR Y=-35 TO 35 STEP 2
1015 IF TR(1) GOTO 1026
1025 IF Y=-35 GOTO 2000
1026 GOSUB 4026
1140 NEXT Y
1150 Y=-35
1160 BOX X,Y,1,1,2
1165 NEXT X
1998 M=M+1
1999 CX=0; CY=40: PRT #1, M
2000 FOR X=6 TO 66 STEP 2
2010 FOR Y=-35 TO 35 STEP 2
2015 IF TR(1) GOTO 2026
2025 IF Y=-35 GOTO 7000
2026 GOSUB 4026
2140 NEXT Y
2150 Y=-35
2160 BOX X,Y,1,1,2
2165 NEXT X
3000 GOTO 998
```

3. LIFE IV, ARCADIAN VOL 2, PG .

4. M. GIWER

```
4026  A=0
4028  BOX X,Y,1,1,3
4030  IF PX(X-2,Y) A=A+1
4040  IF PX(X+2,Y) A=A+1
4050  IF PX(X-2,Y+2) A=A+1
4060  IF PX(X,Y+2) A=A+1
4070  IF PX(X+2,Y+2) A=A+1
4080  IF PX(X-2,Y-2) A=A+1
4090  IF PX(X,Y-2) A=A+1
4100  IF PX(X+2,Y-2) A=A+1
4105  BOX X,Y,1,1,3
4200  IF X<0  D=X+20
4210  IF X>0  D=X-20
4220  IF PX(X,Y)=1 IF (A≠2)+(A≠3)=2 BOX D,Y,1,1,2
4230  IF PX(X,Y)=1 IF(A=2)+(A=3)=1 BOX D,Y,1,1,1
4240  IF PX(X,Y)=0  A=3 BOX D,Y,1,1,1
4250  IF PX(X,Y)=0  A≠3 BOX D,Y,1,1,2
4260  RETURN

7000  FOR S=-35 TO 35 STEP 2
7005  BOX X,Y,1,1,3
7010  IF (X+2,S)=1 GOTO 9000
7013  IF (X,S+2)=1 GOTO 9000
7015  IF (X-2,S)=1 GOTO 9000
7017  BOX X,Y,1,1,3
7019  NEXT S
7020  IF X<0 GOTO 1160
7030  IF X>0 GOTO 2160
~~9000  Y=S-2; GOTO 1026~~
9000  Y=S-2 ; GOTO 1026
```

998 - 1165 left side of screen
1998 - 2165 right side of screen
These lines control the game

4026 - 4260 SBR

4028 and 4105 provide horizontal cursor, if you fool with it you will spell it curser.

4030 - 4100 Search around the location

4220 - 4250 rules of life & death
(There should be a simpler way to state these)
4200 - 4210 put life/death decision on correct side of screen

7000 - 7019
Search routine to cut run time

1015 and 2015
the routine fails for single and vertical double points. pull trigger at the same column on the opposite side of the screen.
Line 1025 and 2025 can be deleted for ~~accurate~~ correct but for longer functioning
4220 and 4230
on my machine there must be spaces between multiple IF statements
also the =1 is not necessary in the IF PX(x,y) condition

7005 and 7015 provide vertical cursor, don't fool with it, be warned

DATA

FORMAT 200 BOX X, Y, 1, 1, 1

	X	Y
200	-52	21
210	-52	23
220	-52	25
230	-52	27
240	-52	29
250	-50	27
260	-48	25
270	-46	23
280	-44	21
290	-44	23
300	-44	25
310	-44	27
320	-44	29
400	-22	-21
410	-20	-19
420	-18	-19
430	-18	-17
440	-18	-23
450	-20	-23
500	-22	19
510	-22	17
520	-22	15
530	-20	15
540	-18	15
550	-16	17
560	-18	19
800	-52	-21
810	-50	-23
820	-50	-21
830	-50	-19

	X	Y
910	-32	1
920	-30	3
930	-28	3
940	-28	1
950	-28	-1

e.g. 950 BOX -28, -1, 1, 1, 1

Try these data sets separately or on one screen

Simple shapes go in the upper half ~~right hand quadrant~~ To make max. use of the time reducing cursor